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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,839	11/02/2006	Ken-ichiro Hara	Q94312	5042
23373	7590	03/25/2009	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			MCGUTHRY BANKS, TIMA MICHELE	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			03/25/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/574,839

**Applicant(s)**

HARA ET AL.

**Examiner**

TIMA M. MCGUTHRY-BANKS

**Art Unit**

1793

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4 and 6-16 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Claims***

Claims 1 and 3-5 are currently amended, Claim 2 is cancelled, Claims 6-11 are s previously presented, Claim 12 is as originally filed and Claims 13-16 are new.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3, 4 and 6-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mishima et al (US 7,445,678 B2) in view of Perry et al (US 3,235,373).

Applicant cannot rely upon the foreign priority papers to overcome the following rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Mishima et al teaches producing maraging steel (column 1, lines 6 and 7) by adding Mg to a consumable electrode (column 3, lines 38-40). The electrode is produced by vacuum induction melting. The oxygen existing during melting combines with Mg to generate magnesia (MgO) inclusions (column 3, lines 41-46). The electrode is subject to vacuum remelting to form an ingot (line 36). Evaporation of Mg occurs (lines 58 and 59). Examples 1-4 and 7-10 in Table 1 show not more than 50% of the Mg remains. Regarding Claim 3, the remelting includes VAR (line 37). Regarding

Claim 4, the ingot comprises N (Table 1). Regarding Claim 6, the amount of Al/Mg overlaps the claimed range (Table 1). Regarding Claim 7, Mg is added as Ni-Mg (column 9, line 2); however, Mishima et al does not teach the alloy composition. a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation; therefore a *prima facie* case of obviousness exists. See MPEP § 2144.05 II B.

Regarding Claim 8, the amount of Al in the steel ingot is within the claimed range (Table 1). Regarding claim 9, the amount of Ti in the steel ingot is within the claimed range (Table 1). Regarding Claim 10, the steel is a maraging steel. Regarding Claim 11, the steel can be used as a tool (column 1, line 12). Regarding Claim 12, N is less than 15 ppm (column 7, line 53), C is not more than 0.01% (line 61), Ti is not more than 2.0% (column 8, line 5), Ni is 8.0-22.0% (line 67), Co is 5.0-20.0% (line 13), Mo is 2.0-9.0% (line 20) and Al is not more than 1.7% (line 24). Regarding Claim 13, the amount of Mg is 10-150 ppm (column 4, line 50). Regarding Claim 14, the oxide inclusions are not less than 10  $\mu\text{m}$  (column 6, lines 26 and 27). The spinel form inclusions that have a size of 10  $\mu\text{m}$  or more exceed 33% (lines 15-19). Regarding Claim 15, the maximum length of the nitride inclusions is not more than 10  $\mu\text{m}$  (column 7, lines 10 and 11). Regarding Claim 16, the maraging steel is applied to a component of a transmission with a thickness of no more than 05 mm (column 5, lines 16-20). In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05.

However, Mishima et al does not teach remelting under a higher vacuum as in Claim 1.

Perry et al teaches producing ultraclean steel. Electrodes are formed and melted at a pressure of 1000 microns (0.133 kPa). Then the electrode is remelted in a vacuum of not more than 100 microns (0.0133 kPa) (column 3, lines 35-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to operate the vacuum melting furnaces of Mishima et al as taught by Perry et al, since Perry et al teaches that this process results in ultraclean steel (column 1, lines 10 and 11). Deoxidation is effectively accomplished (column 9, line 25).

***Allowable Subject Matter***

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Tommaney et al (US 3,687,187) teaches that ingots cast at pressures of less than 2000 microns (0.267 kPa) have a lower incidence of segregation than ingots cast at a pressure in excess of 2000 micron (column 2, lines 15-18). The prior art of record, e.g. Perry et al (cited above) and Coad et al (cited in the office action mailed 10/6/2008) teach initial vacuum melting of 10-1000 microns (0.00133 kPa - 0.133 kPa) to form an electrode and a second vacuum melting of not more than 100 microns (0.0133 kPa).

There is no basis to suggest that the first vacuum melting process would occur at 6 kPa – 60 kPa (45,000 micron - 450,000 micron).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. M. M./  
Examiner, Art Unit 1793  
25 March 2009

/George Wyszomierski/  
Primary Examiner  
Art Unit 1793